

REMARKS

This is a full and timely response to the final Office Action of June 16, 2008.

Reexamination, reconsideration, and allowance of the application and all presently pending claims are respectfully requested.

Upon entry of this Second Response, claims 1-20, 22, 23, 25-28, 31, and 32 are pending in this application, and claim 28 is allowed. Claims 1, 3-9, 16-18, 20, 22, 23, and 25-28 are directly amended herein, and claims 21, 24, 29, and 30 are canceled. Further, claims 31 and 32 are newly added. It is believed that the foregoing amendments add no new matter to the present application.

Response to §103 Rejections

In order for a claim to be properly rejected under 35 U.S.C. §103, the combined teachings of the prior art references must suggest all features of the claimed invention to one of ordinary skill in the art. See, *e.g.*, *In Re Dow Chemical Co.*, 837 F.2d 469, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988), and *In re Keller*, 642 F.2d 413, 208 U.S.P.Q. 871, 881 (C.C.P.A. 1981). In addition, “(t)he PTO has the burden under section 103 to establish a *prima facie* case of obviousness.” *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

Claim 1

Claim 1 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau* (U.S. Patent No. 6,236,726). Claim 1, as amended, reads as follows:

1. A communication system, comprising:
 - a central office transceiver;
 - an intermediate terminal transceiver;
 - a feeder distribution interface coupled to the transceivers;
 - a first customer transceiver coupled through the feeder distribution interface to the central office transceiver;
 - a second customer transceiver coupled through the feeder distribution interface to the intermediate terminal transceiver;
 - memory for storing data based on an estimated distance between the central office transceiver and the feeder distribution interface and an estimated distance between the intermediate terminal transceiver and the feeder distribution interface; and***
 - logic configured to estimate a distance of a data path between the intermediate terminal transceiver and one of the customer transceivers, the logic further configured to adjust, based on each of the estimated distances, a power output of the intermediate terminal transceiver thereby ensuring that signals transmitted by the intermediate terminal transceiver are spectrally compatible with signals transmitted by the central office transceiver.*** (Emphasis added).

Applicants respectfully assert that the cited art fails to suggest at least the features of pending claim 1 highlighted hereinabove. Thus, the 35 U.S.C. §103 rejection of claim 1, as amended, is improper.

In this regard, it is alleged in the Office Action that *Darveau* teaches:

“estimating a distance of a data path between the intermediate terminal transceiver and one of the customer transceivers, the logic further configured to adjust (col. 2, lines 40-56), based on the estimated distance, a power output of the at least one intermediate terminal transceiver in order to maintain a specified performance margin of the at least one central office transceiver.”

Apparently, *Darveau* teaches that subscriber units in communication with a digital termination unit (DTU) at a central location adjust their transmission power levels so that all of the signals arriving

at the DTU are received at approximately the same signal strength. In such a system, the far-end termination point for each subscriber unit is co-located, and *Darveau* fails to suggest that the transmit power of any of the subscriber units should be based on an estimated distance for any of the other subscriber units. In this regard, each subscriber unit apparently estimates its own distance from the DTU and adjusts its power level such that its own signal arrives at the DTU at a desired signal strength. Having each of the subscriber units implementing this same algorithm results in all of the signals arriving at the DTU at approximately the same signal strength thereby reducing far-end crosstalk. In such a system, the operation of one subscriber unit does not appear to be dependent on the distance of another unit from the DTU. In this regard, the subscriber unit apparently adjusts its own transmission power level based on its own distance from the DTU regardless of the distances of the other subscriber units from the DTU. Thus, *Darveau* fails to suggest “**memory for storing data based on an estimated distance between the central office transceiver and the feeder distribution interface** and an estimated distance between the intermediate terminal transceiver and the feeder distribution interface” and logic that is configured to “control, based on **each** of the estimated distances, a power output of the intermediate terminal transceiver,” as recited by claim 1. (Emphasis added). Accordingly, the combination of the admitted prior art and *Darveau* is insufficient for rejecting claim 1 under 35 U.S.C. §103.

The present invention, as defined by claim 1, is attempting to ensure spectral compatibility between signals transmitted from a central office and an intermediate terminal. For such signals, the endpoints at the far-end are not actually co-located, and the intermediate terminal transceivers may be located substantially closer to the feeder distribution interface relative to the central office transceivers. Ensuring that each transmitted signal arrives at its far-end endpoint at the same signal strength, as taught by *Darveau*, does not necessarily ensure spectral compatibility. In fact, ensuring that each transmitted signal arrives at its far-end endpoint at the same signal strength

may, in fact, **cause** spectral compatibility problems depending on the respective distances of the transceivers from the feeder distribution interface. Accordingly, one of ordinary skill in the art would be discouraged from implementing the techniques suggested by *Darveau* with respect to a transceiver located at a central office and a transceiver located at an intermediate terminal. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant... in general, a reference will teach away if it suggest that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant.” *In re Gurley*, 2 F.3d 551, 31 U.S.P.Q.2d 1130, 1131 (Fed. Cir. 1994).

For at least the above reasons, Applicants respectfully assert that the alleged combination of the admitted prior art and *Darveau* is inadequate for suggesting each feature of claim 1, as amended. Accordingly, the 35 U.S.C. §103 rejection of claim 1 should be withdrawn.

Claims 2-6 and 31

Claims 2-6 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. In addition, claim 31 has been newly added via the amendments set forth herein. Applicants submit that the pending dependent claims 2-6 and 31 contain all features of their respective independent claim 1. Since claim 1 should be allowed, as argued hereinabove, pending dependent claims 2-6 and 31 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 7

Claim 7 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 7 reads as follows:

7. A data communication system having a central office transceiver residing at a central office and an intermediate terminal transceiver residing at an intermediate terminal, the central office and intermediate terminal transceivers coupled through a feeder distribution interface to customer transceivers, comprising:
means for determining a distance between the intermediate terminal transceiver and the feeder distribution interface and a distance between the central office transceiver and the feeder distribution interface; and
power reduction means for automatically reducing a transmission power of the intermediate terminal transceiver, based on each of the determined distances, in order to ensure that signals transmitted by the intermediate terminal transceiver are spectrally compatible with signals transmitted by the central office transceiver. (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 7 highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 7 is improper and should be withdrawn.

Claim 8

Claim 8 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. Applicants submit that the pending dependent claim 8 contains all features of its independent claim 7. Since claim 7 should be allowed, as argued hereinabove, pending dependent claim 8 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 9

Claim 9 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 9 reads as follows:

9. A system for communicating between transceivers, comprising:
a transmitter configured to transmit signals to a customer transceiver over a first communication connection that is bound within a binder; and
logic configured to estimate a distance of a data path between the transmitter and the customer transceiver based on at least one signal communicated over the data path, the logic ***further configured to control a transmission power level of the transmitter based on the estimated distance, a distance between the transmitter and a feeder distribution interface, and a distance between another transceiver and the feeder distribution interface*** thereby ensuring that signals transmitted by the transmitter to the customer transceiver are spectrally compatible with signals transmitted from the other transceiver over a second communication connection that is bound within the binder. (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 9 highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 9 is improper and should be withdrawn.

Claims 10-15

Claims 10-15 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. Applicants submit that the pending dependent claims 10-15 contain all features of their respective independent claim 9. Since claim 9 should be allowed, as argued hereinabove, pending dependent claims 10-15 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 16

Claim 16 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 16 reads as follows:

16. A communication method, comprising the steps of:
establishing a communication session between a first transceiver and a second transceiver;
communicating, during a training phase of the communication session, at least one signal between the first and second transceivers over a first communication connection that is bound via a binder, the communicating step comprising the step of transmitting at least one signal from the first transceiver at a default power level;
estimating a distance of a data path between the first and second transceivers based on at least one signal communicated in the communicating step;
controlling a transmission power level for the first transceiver based on the estimated distance of the data path, an estimated distance between the first transceiver and a feeder distribution interface, and an estimated distance between the feeder distribution interface and another transceiver,
such that signals transmitted by the first transceiver over the data path at the adjusted transmission power level are spectrally compatible with signals transmitted by the other transceiver over a second communication connection that is bound by the binder; and
transmitting at least one signal from the first transceiver during a data phase of the communication session. (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 16 highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 16 is improper and should be withdrawn.

Claims 17-19

Claims 17 and 18 presently stand rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. In addition, claim 19 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over admitted prior art in view of *Darveau* and further in view of *Terry* (U.S. Patent

No. 6,339,613). Applicants submit that the pending dependent claims 17-19 contain all features of their respective independent claim 16. Since claim 16 should be allowed, as argued hereinabove, pending dependent claims 17-19 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 20

Claim 20 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 20 reads as follows:

20. A method for providing spectrum management in a data communication system having central office transceivers and intermediate terminal transceivers coupled through a feeder distribution interface to customer transceivers, the method comprising the steps of:

determining a first distance between one of the central office transceivers and the feeder distribution interface;

determining a second distance between one of the intermediate terminal transceivers and the feeder distribution interface;

automatically determining a third distance between the one intermediate terminal transceiver and one of the customer transceivers; and

ensuring spectral compatibility between signals transmitted by the one intermediate terminal transceiver and signals transmitted by the one central office transceiver, the ensuring step comprising the step of ***automatically controlling, based on each of the determined distances, a transmission power of one intermediate terminal transceiver.*** (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 20 highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 20 is improper and should be withdrawn.

Claims 22 and 32

Claim 22 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. In addition, claim 32 has been

newly added via the amendments set forth herein. Applicants submit that the pending dependent claims 22 and 32 contain all features of their respective independent claim 20. Since claim 20 should be allowed, as argued hereinabove, pending dependent claims 22 and 32 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 23

Claim 23 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 23 reads as follows:

23. A method of ensuring spectral compatibility in a data communication system having a central office transceiver and an intermediate terminal transceiver coupled through a feeder distribution interface to a customer transceiver, the method comprising the steps of:

providing a table of power back-off values for adjusting transmission power levels of the intermediate terminal transceiver in order to ensure spectral compatibility between signals transmitted by the intermediate terminal transceiver and signals transmitted by the central office transceiver;

automatically determining a distance between the intermediate terminal transceiver and the customer transceiver based on signals communicated between the intermediate terminal transceiver and the customer transceiver;

selecting one of the power back-off values for the intermediate transceiver based on the determined distance, a distance between the intermediate terminal and the feeder distribution interface, and a distance between the central office transceiver and the feeder distribution interface; and
controlling, based on the selected power back-off value, the transmission power level of the intermediate transceiver. (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 23 highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 23 is improper and should be withdrawn.

Claim 24

Claim 24 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. Applicants submit that the pending dependent claim 24 contains all features of its independent claim 23. Since claim 23 should be allowed, as argued hereinabove, pending dependent claim 24 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 25

Claim 25 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 25 reads as follows:

25. A method for reducing crosstalk in a data communication system having a central office transceiver residing at a central office and an intermediate terminal transceiver residing at an intermediate terminal, the central office transceiver coupled through a feeder distribution interface to a first customer transceiver and the intermediate terminal transceiver coupled through a feeder distribution interface to a second customer transceiver, the method comprising the steps of:

storing a value indicative of an approximate distance between the central office and the feeder distribution interface and a value indicative of an approximate distance between the intermediate terminal and the feeder distribution interface;

automatically determining a value indicative of an approximate distance between the intermediate terminal transceiver and the second customer transceiver;

selecting a transmission power level of the intermediate terminal transceiver based on the each of the values; and

transmitting a signal from the intermediate terminal transceiver at the selected transmission power level. (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 25 highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 25 is improper and should be withdrawn.

Claim 26

Claim 26 presently stands rejected in the Office Action under 35 U.S.C. §103 as allegedly being unpatentable over the admitted prior art in view of *Darveau*. Applicants submit that the pending dependent claim 26 contains all features of its independent claim 25. Since claim 25 should be allowed, as argued hereinabove, pending dependent claim 26 should be allowed as a matter of law for at least this reason. *In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

Claim 27

Claim 27 presently stands rejected under 35 U.S.C. §103 as purportedly being unpatentable over the admitted prior art in view of *Darveau*. Claim 27 reads as follows:

27. A communication method, comprising the steps of:
transmitting a signal from at least one intermediate terminal transceiver through a cable to a customer transceiver, the cable coupled to a feeder distribution interface that is coupled to the at least one intermediate terminal transceiver and at least one central office transceiver, the cable propagating at least one signal transmitted from the at least one central office transceiver;
ensuring spectral compatibility between signals transmitted by the at least one intermediate terminal transceiver and signals transmitted by the at least one central office transceiver, the ensuring step comprising the step of ***automatically controlling a power output of the at least one intermediate terminal transceiver***; and
estimating a distance between the at least one intermediate terminal transceiver and the customer transceiver based on at least one signal transmitted between intermediate terminal transceiver and the customer transceiver, ***wherein the controlling step is based on the estimated distance, a distance between the at least one intermediate terminal transceiver and the feeder distribution interface, and a distance between the at least one central office transceiver and the feeder distribution interface.*** (Emphasis added).

For at least reasons similar to those set forth above in the arguments for allowance of claim 1, Applicants respectfully submit that the cited art fails to suggest at least the features of claim 27 highlighted above. Thus, the 35 U.S.C. §103 rejection of claim 27 is improper and should be withdrawn.

CONCLUSION

Applicants respectfully request that all outstanding objections and rejections be withdrawn and that this application and all presently pending claims be allowed to issue. If the Examiner has any questions or comments regarding Applicants' response, the Examiner is encouraged to telephone Applicants' undersigned counsel.

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